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Project Title: Boston University - Microfluid Experimentation Data Generator

Deliverable: D.2.2. Use Cases

Course: CS386 – Spring 2017

Instructor: Professor Gerosa

Github: <https://github.com/TheAwesomeEgg/CS386ProjectGroup1.git>

Introduction

The purpose of this document is to describe and illustrate the use cases for the microfluidic data generator. We must first state, however, that the use cases are few because the product is intended to fill a specific need for the researchers at Boston University. This is not to say that the product itself is lacking in complexity as the implementation is quite complex, but that the use cases will not be as numerous as other systems.

System Use Case Diagram

In this section, we list a diagram that serves as an abstract overview of the use cases. All use of the product will be from researchers participating in microfluidic experimentation at Boston University. These use cases are derived from interviews that we cited in our previous document regarding the discovery of the consumer. If it becomes necessary to add features or other actors to the system, we will update this documentation at that time.

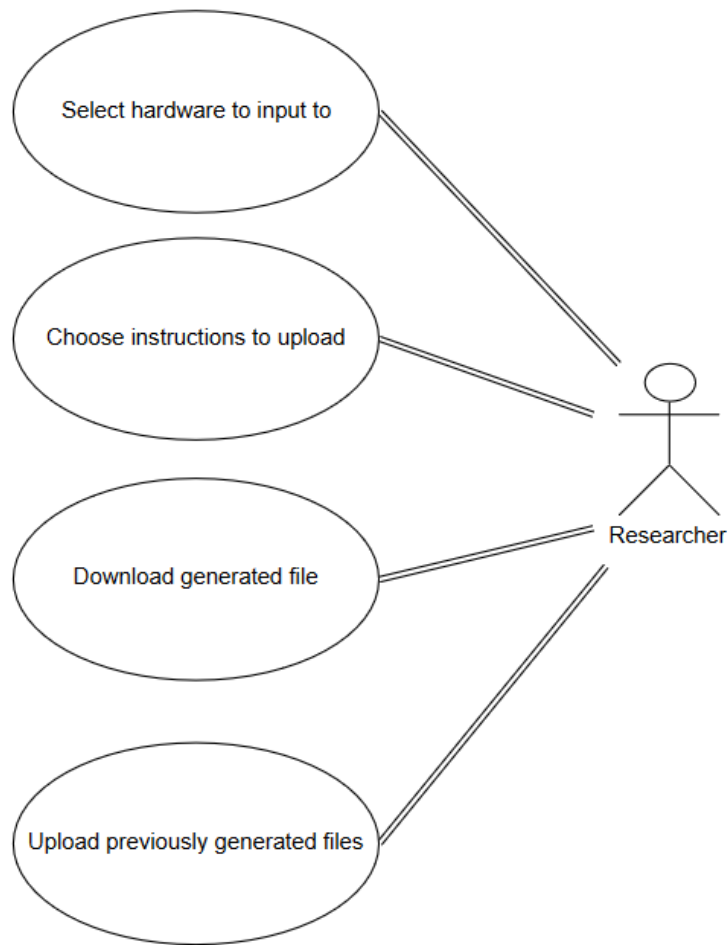


Figure 1: Use Case Diagram

Use Case Descriptions

The purpose of this section is to provide a more detailed, textual description of the use cases presented in the previous section.

Use Case: 1	
Use Case	Select hardware to input to
Actor	Researcher
Descriptions	The researcher selects the hardware device they would like to generate instructions for
Preconditions	The researcher must be connected to the web application
Post-conditions	The application will be prepared to generate instructions for the specific hardware selected
Main Flow	<ol style="list-style-type: none"> 1. The user clicks the drop-down menu pertaining to the hardware selection 2. The user clicks the hardware they wish to use

	3. The user clicks a submission button
Special Requirements	N/A

Use Case: 2	
Use Case	Choose instructions to upload
Actor	Researcher
Descriptions	The researcher chooses the instructions they would like to generate for the hardware
Preconditions	The researcher must have determined which hardware to use prior to this step
Post-conditions	The application will generate a set of instructions for the user
Main Flow	<ol style="list-style-type: none"> 1. The user types the instructions they would like to execute 2. The user clicks a submission button 3. The application generates the instructions in a form appropriate for the hardware they selected
Special Requirements	N/A

Use Case: 3	
Use Case	Download generated file
Actor	Researcher
Descriptions	The researcher receives a prompt to download the generated instruction file to which they choose where to store it locally
Preconditions	The researcher must have specified a hardware device and the instructions necessary
Post-conditions	The user will have a file that is capable of being loaded and executed on the hardware they chose
Main Flow	<ol style="list-style-type: none"> 1. The user is prompted to save the generated file 2. The user downloads the generated file to the path they specified
Special Requirements	N/A

Use Case: 4	
Use Case	Upload previously generated files
Actor	Researcher
Descriptions	The researcher selects a file they have already generated within the application on a separate occasion
Preconditions	The researcher must be connected to the web application and have an appropriate instruction file

Post-conditions	The application will have loaded the instruction file so that it can be modified or converted to an appropriate form for a different hardware
Main Flow	<ol style="list-style-type: none"> 1. The user navigates to the upload code section of the application 2. The user clicks a button to browse for instructions that are stored locally 3. The user submits the instruction file online
Special Requirements	N/A

Conclusion

This concludes the use case description for the current version of the product we plan to create. As the project progresses, there will most likely be additions to the use case set, but the current list is what has been determined as necessary based on the information we have gathered from our stakeholders.

Group Participation

Listed below is a table containing the group participation weights for each team member.

Team Member	Participation
James Beasley	25%
Charles Beck	25%
Charles Duso	25%
Alexander Grzesiak	25%
Erik Strauss	0%